Mikołaj Mieszko Charchuta

github.com/mmcharchuta| linkedin.com/in/mmcharchuta/
| +48 730 359 228 | mmcharchuta@gmail.com | Poznań, Poland (open to remote, hybrid, relocation)

EDUCATION

AMU, POZNAN
MSc in Bioinformatics
Oct 2025 -- Jul 2027

Thesis: *In silico analysis of Cry9 toxins and their genetic determinants in the Bacillus thuringiensis pangenome* (first-author article in preparation).

AMU, POZNAN
BSc in Bioinformatics & Biotechnology
Oct 2021 -- Sep 2025

Thesis: *Comparison of naïve methods for taxonomic classification of microorganisms using marker gene sequences* (created the NaïveR R package).

CHARLES UNIVERSITY, PRAGUE
Erasmus+ Exchange
Winter 2022/23, Summer 2023/24
• Institute of Microbiology, Czech Academy of Sciences:
Profiling metabolism of complex microbial communities with Stable Isotope Probing and meta-omics.
• Faculty of Natural Sciences, Charles University:
Applying CryoEM for studying the structures of cultivated meat proteins.

UNIVERSITY OF GDANSK
National Exchange
Winter semester 2023/24
• Faculty of Biotechnology, UoG & GUMed:
Metabolomics & proteomics of SynComs bioprotective against plant pathogens.
• Faculty of Biology, UoG:
Genomes of phages infecting uropathogenic E. coli.

SKILLS

PROGRAMMING
R • Bash • Python • C++
Git • Docker • AWS • Slurm • Nextflow

BIOINFORMATICS
Transcriptomics (DESeq2, rMATS)
Genomics (samtools, GATK, Hi-C/3C-seq)
Metagenomics (QIIME2, mothur, NaïveR)

THESIS SKILLS
R package development (NaïveR)
Pangenome analysis • gene mining

LANGUAGES
English (C2) • Polish (Native)
German (B2) • French (B2)
Czech (A2) • Hungarian (A2)

EXPERIENCE

AMU MICROBIOLOGY DEPT. | Bioinformatician
Sep 2025 -- Present, 20% FTE | Poznań, PL
- Genomics of pests and biopesticidal microbes; predictive protein design.
- Hi-C/3C-seq analysis and workflow development.

BENE MEAT TECHNOLOGIES | Bioinformatician
Mar 2024 -- Jul 2024 | Prague, CZ

- Transcriptomics and nanopore sequencing support.
- Bioreactor automation and production bioinformatics support.

LEIDEN UNIVERSITY MEDICAL CENTER | Intern, Endocrinology Dept.
Jun 2023 -- Oct 2023 | Leiden, NL

- Bioinformatics support, data visualization, and pipeline creation.
- Co-authored publication in AJP (murine model work).

MNM DIAGNOSTICS | Genome Analyst
Feb 2022 -- Jul 2022 | Poznań, PL

- Automation, WGBS (epigenomics) ML feature extraction, data-lake.
- Genome analysis interpretation. Cooperation with clinicians.

PROJECTS

TESTING DYNAMAP™ -- OPTICAL MAPPING & NANOPORE |
Bachelor Thesis Project (Team Lead)
Oct 2023 -- Oct 2025

- Student research grant; led team benchmarking microbiome profiling methods.
- Coordinated with Perseus Biomics - a startup specializing in rapid diagnostics - to test their DynaMAP™ technology for microbiome profiling, comparing it against established methods like 16S rRNA sequencing and shotgun metagenomics.

SPUN -- ILLUMINA SEQUENCING | International Grant
Nov 2022 -- Apr 2024

- Predicted global biodiversity hotspots with ML.
- Field research video: `https://youtu.be/6frg_7ykXvc?t=128`.

PUBLICATIONS

In silico analysis of Cry9 toxins and their genetic determinants in the Bacillus thuringiensis pangenome
In preparation (expected 2026). Charchuta, M. M. (first), Baranek, J. (second), et al.
Combination of dietary fiber and exercise training improves fat loss in mice but does not ameliorate MASLD more than exercise alone
American Journal of Physiology-Gastrointestinal and Liver Physiology, 2025. Kovynev, A.; Charchuta, M. M.; et al.
WED-517 Oatmeal a day does not keep the doctor away: inulin and exercise impact on MASLD amelioration and gut-liver crosstalk
Journal of Hepatology, 2024. Kovynev, A.; Charchuta, M.; et al.